

Inventor:—MICHAEL MAYNARD.

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Index at Acceptance :—Class 66, L(1:3:X).

## COMPLETE SPECIFICATION.

## Improvements in or relating to Collapsible Containers.

We, GESTETNER LIMITED, a British Company, of Fawley Road, Tottenham, London, N.17, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention concerns collapsible containers such as are commonly used for pasty materials and semi-solids and relates more particularly to containers made from a vinyl plastic, for example, polyvinyl chloride. The invention is particularly concerned with containers for ink for use in duplicating machines wherein the ink is withdrawn, during operation of the machine, by a suction pump suitably connected to the neck or nozzle of the container. To ensure effective withdrawal of the ink the neck or nozzle connects with a tube extending within the container to the bottom thereof, the ink being drawn up the tube to the nozzle by the pump. It is found that the ink is satisfactorily withdrawn from the bottom of the container to within a short distance from the shoulder of the container whereupon conjointly the rigidity of the shoulder preventing container collapse beneath the shoulder and the complete contraction of the container on the tube below the region of non-collapse results in a considerable quantity of ink being trapped immediately beneath the shoulder and being wasted. The object of the present invention is to overcome this disadvantage and minimise the loss of ink.

According to the present invention the shoulder of a collapsible container which is made of a vinyl plastic is locally weakened so that under pressure it will fold or collapse in a desired manner. Preferably the shoulder is locally weakened by forming radial grooves which may be in line (i.e. on a diameter) so that the two portions of the

shoulder between the grooves will fold down one against the other.

A practical application of the invention is diagrammatically illustrated in the drawings accompanying the Provisional Specification in which:—

Figure 1 is a perspective view of a container in accordance with the present invention;

Figure 2 is a section on the line II—II of Figure 1 showing a detail of construction; and

Figure 3 and 4 are views similar to Figure 2 showing alternative constructions.

Referring to Figure 1: the collapsible container is made from a thin wall tube 5 of polyvinyl chloride, a shoulder 6 (moulded from polyvinyl chloride) being received by the upper portion of the tube and sealed therein, as at 7, the shoulder 6 being formed with the conventional screwed neck or nozzle 8. The lower end of the tube 5 is sealed at 9. A tube 10 is received in the nozzle 8 and extends downwardly within the tube 5 to near the lower end of the tube.

In use: a suction pump is connected to the nozzle 8 and the ink is withdrawn through the bottom of the tube 10, i.e. downwardly from the tube 5 and upwardly through the tube 10.

According to this invention the outer surface of the shoulder 6 is grooved at 11 to form a local weakened region, generally indicated at 12 (Figure 2) extending radially from the nozzle 8 to the peripheral edge of the shoulder. The grooves 11 are in line, i.e. on a diameter.

With the arrangement described the portions 13 between the grooves 11 are folded down one against the other by atmospheric pressure on evacuation of the upper portion of the tube 5 by the suction pump and such folding is assured by the grooves 11.

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- In an alternative arrangement, the inner surface of the shoulder 6 is grooved at 14 to form a local weakened region 12, the grooves 14 being equivalent to the grooves 11. In yet a further alternative construction the inner and outer surfaces are grooved at 11 and 14 the outer grooves being superimposed on the inner grooves throughout their length.
- It is to be understood that three or more grooves may be provided if it is found that such an arrangement will ensure that the shoulder of the container will fold or collapse in the manner which is desired. For example, three equi-spaced radial grooves may be provided or a pair of parallel grooves lying one on each side of the nozzle 8 may be used.
- What we claim is:—
1. A collapsible container of a vinyl plastic having a shoulder piece which is locally weakened so that under pressure it will fold or collapse in a desired manner.
  2. A container according to Claim 1 wherein the shoulder piece is locally weakened by one or more radial grooves in the wall of the shoulder piece.
  3. A container as claimed in Claim 2 in which two radial grooves are provided which are in line.
  4. A container according to Claim 2 or 3 wherein the outer surface of the shoulder piece is grooved.
  5. A container according to Claim 2 or 3 in which the inner surface of the shoulder piece is grooved.
  6. A container as claimed in Claim 2 or 3 in which the inner and the outer surfaces of the shoulder piece are grooved, the outer grooves being superimposed on the inner grooves throughout their length.
  7. A collapsible container substantially as hereinbefore described and as illustrated in Figure 1 of the drawings accompanying the Provisional Specification.

For the Applicants,  
J. A. KEMP & CO.,  
Chartered Patent Agents,  
Bank Chambers, 329 High Holborn,  
London, W.C.1.

#### PROVISIONAL SPECIFICATION.

#### Improvements in or relating to Collapsible Containers.

- We, GESTETNER LIMITED, a British Company, of Fawley Road, Tottenham, London, N.17, do hereby declare this increase to be described in the following statement:—
- This invention concerns collapsible containers such as are commonly used for pasty materials and semi-solids and relates more particularly to containers made from a vinyl plastic, for example, polyvinyl chloride. The invention is particularly concerned with containers for ink for use in duplicating machines wherein the ink is withdrawn, during operation of the machine, by a suction pump suitably connected to the neck or nozzle of the container. To ensure effective withdrawal of the ink the neck or nozzle connects with a tube extending within the container to the bottom thereof, the ink being drawn up the tube to the nozzle by the pump. It is found that the ink is satisfactorily withdrawn from the bottom of the container to within a short distance from the shoulder of the container whereupon conjointly the rigidity of the shoulder preventing container collapse beneath the shoulder and the complete contraction of the container of the tube below the region of non-collapse results in a considerable quantity of ink being trapped immediately beneath the shoulder and being wasted. The object of the present invention is to overcome this disadvantage and minimise the loss of ink.
- According to the present invention the shoulder of a collapsible container which is made of a vinyl plastic is locally weakened so that under pressure it will fold or collapse in a desired manner. Preferably the shoulder is locally weakened by forming radial grooves which may be in line (i.e. on a diameter) so that the two portions of the shoulder between the grooves will fold down one against the other.
- A practical application of the invention is diagrammatically illustrated in the accompanying drawings in which:—
- Figure 1 is a perspective view of a container in accordance with the present invention;
- Figure 2 is a section on the line II—II of Figure 1 showing a detail of construction; and
- Figures 3 and 4 are views similar to Figure 2 showing alternative constructions.
- Referring to Figure 1 the collapsible container is made from a thin wall tube 5 of 100 polyvinyl chloride, a shoulder 6 (moulded from polyvinyl chloride) being received by the upper portion of the tube and sealed therein as at 7, the shoulder 6 being formed with the conventional screwed neck or nozzle 8. The lower end of the tube 5 is sealed at 9. A tube 10 is received in the nozzle 8 and extends downwardly within the tube 5 to near the lower end of the tube.
- In use, a suction pump is connected to the nozzle 8 and the ink is withdrawn

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through the bottom of the tube 10, i.e. downwardly from the tube 5 and upwardly through the tube 10.

- According to this invention the outer surface of the shoulder 6 is grooved at 11 to form a local weakened region, generally indicated at 12 (Figure 2) extending radially from the nozzle 8 to the peripheral edge of the shoulder. The grooves 11 are in line, i.e. on a diameter.

- With the arrangement described the portions 13 between the grooves 11 are folded down one against the other by atmospheric pressure on evacuation of the upper portion of the tube 5 by the suction pump and such folding is assured by the grooves 11.

In an alternative arrangement, the inner surface of the shoulder 6 is grooved at 14 to form a local weakened region 12, the

grooves 14 being equivalent to the grooves 11. In yet a further alternative construction the inner and outer surfaces are grooved at 11 and 14.

It is to be understood that three or more grooves may be provided if it is found that such an arrangement will ensure that the shoulder of the container will fold or collapse in the manner which is desired. For example, three equi-spaced radial grooves may be provided or a pair of parallel grooves lying one on each side of the nozzle 8 may be used.

For the Applicants,  
J. A. KEMP & CO.,  
Chartered Patent Agents,  
Bank Chambers, 329 High Holborn,  
London, W.C.1.

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